Claims

1. A web splicer, comprising:

a first roll supporter for supporting a first core having a first roll positioned thereon, said first roll comprising a first web wound around said first core;

a second roll supporter for supporting a second core having a second roll positioned thereon, said second roll comprising a second web wound around said second core;

a paster roll, said paster roll being rotatable about a paster roll axis, said paster roll being mounted on a carriage, said paster roll being movable relative to said carriage;

a carriage driving device, said carriage driving device causing said carriage to move from a first carriage position to a second carriage position after an engage signal is fed to said carriage driving device, whereby said paster roll abuts said second roll when said carriage is in said second carriage position; and

a pressing device which selectively causes force to be applied to said paster roll relative to said carriage.

2. A web splicer as recited in claim 1, wherein said paster roll is rotatably mounted on a paster roll bracket, said paster roll bracket being pivotally mounted on said carriage.

3. A web splicer as recited in claim 2, wherein said pressing device has a first connecting element and a second connecting element, said first connecting element being connected to said carriage, said second connecting element being connected to said paster roll bracket, whereby force exerted by said pressing device applies force to said paster roll relative to said carriage.

4. A web splicer as recited in claim 3, wherein said pressing device is a hydraulic cylinder device which, when actuated, applies force to said paster roll away from said carriage.

5. A web splicer as recited in claim 1, wherein said carriage driving device causes said carriage to move from said second carriage position to said first carriage position after a disengage signal is fed to said carriage driving device, said paster roll not abutting said

second roll when said carriage is in said first carriage position.

6. A web splicer as recited in claim 1, wherein said carriage driving device comprises a servo motor.

7. A web splicer as recited in claim 1, wherein said carriage driving device comprises a gearshaft rotatable in clockwise and counter-clockwise directions, at least one gear integral with or connected to said gearshaft, and at least one rack integral with or connected to carriage, said gear having gear teeth, said rack having rack teeth, said gear teeth engaging said rack teeth,

whereby rotation of said gearshaft in said clockwise direction causes said carriage to move in a first direction, and rotation of said gearshaft in said counter-clockwise direction causes said carriage to move in a second direction, said second direction being opposite said first direction.

8. A web splicer as recited in claim 7, wherein said carriage driving device further comprises a servo motor which selectively drives said gearshaft rotationally in said clockwise direction or said counter-clockwise direction.

9. A web splicer as recited in claim 1, wherein said carriage driving device comprises at least one cam and said carriage comprises at least one cam-contacting surface, and wherein said cam contacts said cam-contacting surface.

10. A web splicer as recited in claim 9, wherein said carriage driving device further comprises a servo motor which selectively drives said cam rotationally in a clockwise direction or a counter-clockwise direction,

whereby rotation of said cam in said clockwise direction causes said carriage to move in a first direction, and rotation of said cam in said counter-clockwise direction causes said carriage to move in a second direction, said second direction being opposite said first direction.

11. A web splicer as recited in claim 9, wherein said carriage driving device further comprises a servo motor which selectively drives said cam rotationally,

whereby rotation of said cam over a first portion of a complete rotation causes said carriage to move in a first direction, and rotation of said cam over a second portion of said complete rotation causes said carriage to move in a second direction, said second direction being opposite said first direction.

12. A web splicer as recited in claim 1, further comprising a detector which detects occurrences of a splice region on said second roll passing a detection location.

13. A web splicer as recited in claim 12, wherein said detector comprises a photo detect eye.

14. A web splicer as recited in claim 12, further comprising a pulse generator and a pulse counter.

15. A web splicer as recited in claim 1, further comprising a web cutter which, when actuated, cuts said first web.

16. A web splicer as recited in claim 12, further comprising timing means for causing said engage signal to be fed at a time whereby said engage signal actuates said carriage driving device and brings said paster roll into contact with said second roll at a contact location when said splice region is between one-quarter and three-quarters of a revolution of said second roll from said contact location.

17. A web splicer, comprising:

a first roll supporter for supporting a first core having a first roll positioned thereon, said first roll comprising a first web wound around said first core;

a second roll supporter for supporting a second core having a second roll positioned thereon, said second roll comprising a second web wound around said second core;

a paster roll, said paster roll being rotatable about a paster roll axis, said paster roll

being mounted on a carriage, said paster roll being movable relative to said carriage;

means for moving said carriage from a first carriage position to a second carriage position after an engage signal is fed to said means for moving said carriage, whereby said paster roll abuts said second roll when said carriage is in said second carriage position; and

means for applying pressure on said paster roll against said second roll when said carriage is in said second carriage position.

18. A web splicer as recited in claim 17, wherein said paster roll is rotatably mounted on a paster roll bracket, said paster roll bracket being pivotally mounted on said carriage.

19. A web splicer as recited in claim 18, wherein said means for applying pressure has a first connecting element and a second connecting element, said first connecting element being connected to said carriage, said second connecting element being connected to said paster roll bracket, whereby force exerted by said means for applying pressure applies pressure to said paster roll relative to said carriage.

20. A web splicer as recited in claim 17, wherein said means for driving said carriage causes said carriage to move from said second carriage position to said first carriage position after a disengage signal is fed to said means for moving said carriage, whereby said paster roll does not abut said second roll when said carriage is in said first carriage position.

21. A web splicer as recited in claim 17, wherein said means for driving said carriage comprises a servo motor.

22. A web splicer as recited in claim 17, wherein said means for driving said carriage comprises a gearshaft rotatable in clockwise and counter-clockwise directions, at least one gear integral with or connected to said gearshaft, and at least one rack integral with or connected to carriage, said gear having gear teeth, said rack having rack teeth, said gear teeth engaging said rack teeth,

whereby rotation of said gearshaft in said clockwise direction causes said carriage to move in a first direction, and rotation of said gearshaft in said counter-clockwise direction

causes said carriage to move in a second direction, said second direction being opposite said first direction.

23. A web splicer as recited in claim 22, wherein said means for driving said carriage further comprises a servo motor which selectively drives said gearshaft rotationally in said clockwise direction or said counter-clockwise direction.

24. A web splicer as recited in claim 17, wherein said means for driving said carriage comprises at least one cam and said carriage comprises at least one cam-contacting surface, and wherein said cam contacts said cam-contacting surface.

25. A web splicer as recited in claim 24, wherein said means for driving said carriage further comprises a servo motor which selectively drives said cam rotationally.

26. A method of splicing a second web to a first web, comprising:

unwinding a first web from a first roll;

rotating a second roll, said second roll comprising a second web wound around a second core, said second web having a splice region on an external portion of said second roll;

actuating a pressing device to cause force to be applied to a paster roll relative to a carriage, said paster roll being mounted on said carriage, said paster roll being movable relative to said carriage; and

moving said carriage from a first carriage position to a second carriage position upon receiving an engage signal, whereby a portion of said first web is sandwiched between said paster roll and said second roll at a contact location;

whereby a force applied to said first web between said paster roll and said second roll is controlled by force applied by said pressing device;

whereby when said splice region passes through said contact location, said second web becomes attached to said first web along said splice region.

27. A method as recited in claim 26, wherein said paster roll is rotatably mounted on a paster roll bracket, said paster roll bracket being pivotally mounted on said carriage.

28. A method as recited in claim 27, wherein said pressing device has a first connecting element and a second connecting element, said first connecting element being connected to said carriage, said second connecting element being connected to said paster roll bracket.

29. A method as recited in claim 28, wherein said pressing device is a hydraulic cylinder device which applies force to said paster roll away from said carriage.

30. A method as recited in claim 26, further comprising moving said carriage from said second carriage position to said first carriage position, whereby said paster roll is moved out of abutment with said second roll.

31. A method as recited in claim 26, wherein said carriage driving device comprises a servo motor.

32. A method as recited in claim 26, wherein said carriage driving device causes at least one gearshaft to rotate when said carriage driving device is activated in response to said engage signal, said gearshaft being integral with or connected to at least one gear, said gear having gear teeth which engage a rack which is integral with or connected to said carriage, said rotation of said gearshaft in a first direction causing said carriage to move from said first carriage position to said second carriage position as a result of said engagement of said gear teeth with said rack, said rotation of said gearshaft in a second direction causing said carriage to move from said second carriage position to said first carriage position.

33. A method as recited in claim 32, wherein said carriage driving device comprises a servo motor which selectively drives said gearshaft rotationally in said clockwise direction or said counter-clockwise direction.

34. A method as recited in claim 26, wherein said carriage driving device causes at least one cam to rotate when said carriage driving device is activated in response to said engage signal, said cam contacting a cam-contacting surface on said carriage, said rotation of said cam in a clockwise direction causing said carriage to move in a first direction, and rotation of said cam in a counter-clockwise direction causing said carriage to move in a second direction, said second direction being opposite said first direction.

35. A method as recited in claim 26, wherein said carriage driving device causes at least one cam to rotate when said carriage driving device is activated in response to said engage signal, said cam contacting a cam-contacting surface on said carriage, rotation of said cam over a first portion of a complete rotation causing said carriage to move in a first direction, and rotation of said cam over a second portion of said complete rotation causing said carriage to move in a second direction, said second direction being opposite said first direction.

36. A method as recited in claim 26, further comprising detecting occurrences of a splice region on said second roll passing a detection location, and feeding said engage signal to said carriage driving device at a time whereby said carriage driving device brings said paster roll into contact with said second roll at a contact location when said splice region is between one-quarter and three-quarters of a revolution of said second roll from said contact location.

37. A method as recited in claim 26, further comprising moving a web cutter from a first web cutter position to a second web cutter position, said web cutter cutting said first web when said web cutter reaches said second web cutter position.